

What is claimed is:

1. An imaging device comprising:
a substrate containing electrical elements of the imaging device;
an array of lenses on the substrate;
a standoff on the substrate and surrounding the array of lenses; and
a cover attached to the standoff, wherein the cover overlies the array of lenses.
2. The device of claim 1, wherein the standoff comprises a ring of photoresist.
3. The device of claim 1, wherein the standoff includes a vent leading to a gap between the cover and the array of lenses.
4. The device of claim 3, wherein the vent comprises a channel including one or more turns.
5. The device of claim 1, further comprising a barrier on the substrate and between the standoff and the array of lenses.
6. The device of claim 5, wherein each of the standoff and the barrier includes a channel, and together the channels provide a vent leading to a gap between the cover and the array of lenses.
7. The device of claim 1, wherein the imaging device is a CMOS image sensor.
8. The device of claim 1, further comprising adhesive attaching the cover to the standoff, wherein the adhesive contains filler particles having a size approximately equal to a thickness of the adhesive between the cover and the standoff.
9. A method for fabricating an imaging device, comprising:
fabricating electrical components of the imaging device on a substrate;
forming an array of lenses on the substrate;
forming a standoff on the substrate and surrounding the array of lenses; and

attaching a cover to the standoff.

10. The method of claim 9, wherein the substrate is a wafer, and fabricating the electrical components comprises processing the wafer to form a plurality of substantially identical integrated circuits, the imaging device being one of the integrated circuits.

11. The method of claim 10, further comprising:

forming a plurality of arrays of lenses respectively on the plurality of the integrated circuits;

forming a plurality of standoffs respectively surrounding the plurality of arrays of lenses; and

attaching the cover to the plurality of standoffs.

12. The method of claim 11, further comprising cutting the cover to remove a portion of the cover that overlies active circuitry in the substrate, wherein cutting the cover leaves an underlying portion of the substrate intact.

13. The method of claim 12, further comprising cutting grooves in an underside of the cover before attaching the underside of the cover to the standoffs, wherein cutting to remove the portion of the cover overlying active circuitry cuts from a topside of the cover down to the grooves.

14. The method of claim 10, further comprising sawing the wafer and the cover to form separated dies.

15. The method of claim 9, wherein forming the standoff comprises:

depositing a layer of photoresist on the substrate;

exposing the photoresist to define an area corresponding to the standoff;

developing the photoresist to leave a portion of the photoresist from which the standoff is formed.

16. The method of claim 9, wherein attaching the cover comprises:

applying an adhesive to a top surface of the standoff; and

pressing the cover onto the standoff so that the adhesive binds the cover to the standoff.

17. The method of claim 16, wherein the adhesive contains filler particles having a size about equal to a thickness of the adhesive between the cover and the standoff after the pressing step.

18. The method of claim 9, further comprising forming an optical coating on the cover before attaching the cover to the standoff.